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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,265	01/16/2002	Masahiro Ono	56937-04	3548

7590

08/21/2003

McDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER

GEYER, SCOTT B

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/046,265

Applicant(s)

ONO ET AL.

Examiner

Scott B. Geyer

Art Unit

2829

-- The MAILING DATE of this communication appears on the reverse with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 16-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☒ Claim(s) 2 and 9-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 1-15 in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. The references cited within the IDS, entered as paper no. 3, have been considered.

### ***Drawings***

4. The drawings are objected to because of the following informalities:

Figure 1: delete numeral "10" from the figure

Figure 15: numeral "15" not disclosed in spec.; change "15" to - - 1 - - on drawing.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

5. The disclosure is objected to because of the following informalities:

Page 24, line 32: change "adhesive agent 5" to - - encapsulant 5 - -.

Appropriate correction is required.

5A. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware of in the specification.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over lida et al. (6,465,858 B2) in view of Frederiksen (4,136,357).

7A. As to claim 1, lida et al. teach a photo-semiconductor module comprising a circuit board (circuit substrate) 8, a light receiving semiconductor device 2, as shown in figure . Also, as shown in figure 3, lida et al. teach an optical fiber 1 fixed to the semiconductor module. lida et al. do not teach the optical fiber fixed to a mounting face of the light receiving photo-semiconductor device, or fixed to a back face of the light receiving photo-semiconductor device. However, Frederiksen teach a photo-

semiconductor module in figure 1 wherein a light pipe 12 is fixed to the module wherein the light pipe 12 is fixed to the face of the light receiving semiconductor device 18. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the fiber optic cable/photo-semiconductor module of lida et al. with Frederiksen so as to provide a direct and unhindered path between the light receiving device and the fiber optic cable which directs the light to the device.

7B. As to claim 3, lida et al. teach attachment of light receiving semiconductor device to the circuit board with protruding electrodes as is clearly depicted in figure 1 and with a conductive adhesive (see column 4, lines 66-67, continued to column 5, lines 1-2).

7C. As to claim 4, lida et al. teach surroundings of the connection between the circuit board and the light receiving semiconductor device encapsulated with under-fill 10 (see fig. 1).

7D. As to claim 5, lida et al. teach an opposing portion between the light receiving semiconductor device and the circuit board encapsulated with under-fill 10 (see fig. 1).

7E. As to claim 6, lida et al. teach attachment of light receiving semiconductor device to the circuit board with solder (see column 4, lines 66-67, continued to column 5, lines 1-2).

7F. As to claim 7, lida et al. teach surroundings of the connection between the circuit board and the light receiving semiconductor device encapsulated with under-fill 10 (see fig. 1).

7G. As to claim 8, lida et al. teach an opposing portion between the light receiving semiconductor device and the circuit board encapsulated with under-fill 10 (see fig. 1).

***Allowable Subject Matter***

8. Claims 2, 9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record and to the examiner's knowledge does not teach or render obvious, at least to the skilled artisan, the instant invention regarding:

a light receiving photo-semiconductor having a photo-absorbing layer wherein the optical fiber is fixed at a position opposite to the photo-absorbing layer along a direction perpendicular to the mounting face, as in claim 2;

an optical fiber fixed to the back face of the light receiving semiconductor device using an adhesive resin, as in claim 9;

a light receiving photo-semiconductor device provided on a compound semiconductor substrate having a pin-photodiode, as in claim 12.

Claims 10, 11 and 13-15 are dependent upon claims 9 and 12.

9. The following references are cited as being particularly related to the applicant's invention: Kato (6,485,197 B1), Farnworth et al. (6,380,563 B2), Verdiell (6,207,950 B1), Verdiell (5,977,567), Ohashi et al. (4,368,481), Yeats (4,355,321), Palmer (4,307,934), Roberts et al. (3,590,344).

**Conclusion**

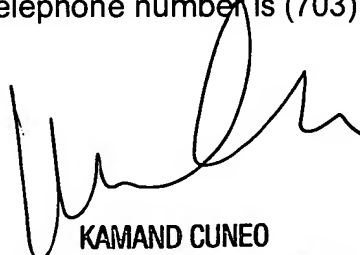
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (703) 306-5866. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. E-mail: [scott.geyer@uspto.gov](mailto:scott.geyer@uspto.gov)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.B.G.

SBG  
August 8, 2003

  
KAMAND CUNEO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800